CLIMATE MASTERS™ OF NEW MEXICO

Shrinking your climate footprint and motivating others to do the same thing

HOME ENERGY RECOMMENDATIONS

Home energy use accounts for nearly half of our personal greenhouse-gas emissions. Most of that energy goes toward space heating, water heating, appliances, lighting, and cooking, typically in that order, although it varies from household to household.

With one third of New Mexico's total electricity usage going toward residential use and the average resident consuming approximately 12,000 kilowatt-hours per year, homes constitute a substantial portion of our greenhouse-gas emissions. With impending climatic change and increasing energy costs, the payoffs for increase home energy efficiency make more and more sense. In addition to the initial monthly energy bill savings, a variety of income tax incentives are provided on local and state levels to encourage home energy efficiency improvements.

Updating appliances and weatherizing your home can considerably improve energy efficiency, but simple behavioral changes can also significantly reduce energy consumption and therefore greenhouse-gas emissions. Turning off the heat or setting back thermostats at night or when you're out of the house, washing clothes with cold water, and avoiding leaving appliances on standby will also affect household greenhouse-gas emissions.

Recommendations: Heating and Cooling

1. **Turn down the heat**. For every degree that you heat your house over 67F, you add 3 percent to your heating bill. For example, turning the heat down from 72F to 67F can save you $123 and cut 1,575 pounds of CO2 equivalent from your greenhouse-gas emissions per year.

2. **Turn up the AC.** The air conditioning energy saving setting is 78F or higher. Each degree lower adds 3 percent to your cooling bill while each degree higher subtracts 3 percent from your cooling bill.

3. **Turn the heat down when you are out for the day or sleeping.** This can save up to $444 and cut a massive 5,670 pounds of CO2 equivalent from your greenhouse-gas emissions each year. To help you with these measures, you can get a programmable thermostat or calibrate and set the thermostat yourself.

4. **Practice zone heating.** Heat only the rooms that you are using.

5. **Efficient wood heating.** A wood stove is five times more efficient than a fireplace. The chimney is a huge heat funnel; it acts like a hole in the wall twice the size of the chimney's throat. If you use a fireplace install glass doors and close the damper when not in use. Avoid using the fireplace and a gas or electric heater simultaneously. Fire needs oxygen to burn so it will draw cold air through cracks and leaks in your house in order to supply sufficient oxygen.

6. **Seal air leaks.** In an average home air leaks are equivalent to leaving an average-sized window open. Install weather stripping, outlet insulators, insulating foam, window putty, and door sweeps to save $222 per year and cut 2,835 pounds of CO2 equivalent from your greenhouse-gas emissions per year.

7. **Insulating** reduces the loss of up to 60 percent of the energy you use to heat your home. Much escapes through parts of the house that can be insulated (walls, ceiling and floors). Attic insulation can save 20-35% in heating costs.

8. **Maintain and optimize your furnace** and heating-cooling system. In some cases as much as 50% of the energy used in the furnace is wasted. Have your electric furnace tuned each year. This can save $53 annually and cut 677 pounds of CO2 equivalent from your greenhouse-gas emissions per year. Seal and insulate all air heating ducts. Avoid blocking vents and heating units with furniture for better air flow. Use a fan to circulate the air and redistribute the heat. Clean your filters monthly for forced air systems.

9. **Windows.** For an average-size home built in the 1970s with electric heating, switching from single-paned to double-paned windows will save approximately $152 and cut 1,744 pounds of CO2 equivalent from your greenhouse-gas emissions annually. Triple-paned windows will save even more. As an alternative, add storm windows or plastic wrap to single-paned windows. Close curtains or blinds during cold nights to trap heat or on hot days to block sunlight. Thick drapes will keep your house warmer than thin ones.

10. **Cool with a fan** instead of air conditioning.

11. **Buy an energy efficient heating system** if purchasing a new one to reduce costs and emissions in the long run.

12. **Work with the sun.** Allow sunlight to warm your house in the winter by opening curtains and blinds. Block our the sun with curtains and blinds during hot summer days to keep your house cooler.

13. **Buy renewable energy** from your utility or, if you've done everything to gain efficiency, consider installing solar photovoltaic panels to produce energy at home.

Recommendations: Water Heating and Use

Water heating typically accounts for 15 percent of household energy consumption and is therefore the second greatest source of household emissions. Have you ever had to rush out of the shower because the hot water ran out? When the "quick recovery" feature on

the common water heater flips on, the energy consumption nearly doubles. Behaviors like taking shorter showers, avoiding filling your bathtub with hot water, and turning the faucet off while brushing your teeth or shaving can save unnecessary emissions and wasted money and resources. Add a few physical improvements, such as insulation on the first few feet of pipe leading to your water heater and an insulating blanket around the heater itself, and you'll see significant changes in your next bill.

1. **Showering.** A ten minute shower uses approximately 50 gallons of hot water. Heating this water emits six pounds of carbon dioxide. Shoot for a five minute shower. Install a low flow shower head. Each of these options saves $43 per year and cuts 494 pounds of CO2 equivalent from your annual greenhouse-gas emissions.

2. **Water heater.** Most heaters are pre-set at 140F and can easily be reset to 120F. This can save $14 annually and cuts 162 pounds CO2 equivalent from your annual greenhouse-gas emissions. Add an insulation blanket to older electric water heaters that feel warm to the touch. (Insulating a new electric water heater can fry it.) Add foam insulation sleeves to the first five feet of pipe running from the unit. Turn off your water heater while you're on vacation. Turn it off at the circuit breaker or install a switch. Switches can be installed with timers so you don't have to remember to turn it on and off.

3. **Turn off the tap.** Stop sending clean water and money down the drain by running the tap while doing dishes, brushing your teeth, and shaving. While you're at it, use cold water for these activities for greater savings.

4. **Check for leaks** around faucets, clothes washers, and water heaters.

5. **Install a solar water heater.** Although costly to install, a solar water heating system can save a household 50-80% on the water heating bill. As prices for electricity and natural gas go up, the savings increase. Annual emissions savings range from 2,700 to 4,320 pounds of carbon dioxide.

Recommendations: Appliances

There are dozens of simple and cost-effective alterations you can make regarding your appliances that will significantly reduce your impact on global climate change.

Refrigerator

1. **Replace inefficient models.** For refrigerators older than 2001, Energy Star models are roughly 40% more energy efficient. Depending on use, the average household will save 540 pounds of carbon dioxide per year.

2. **Set temperature** between 38 and 42 degrees Fahrenheit. Use a thermometer in a glass of water to calibrate.

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3. **Locate** away from heat sources.

4. **Clean vacuum coils** (on back or underneath). When they're dirty the refrigerator comes on more often and operates longer. Be sure to unplug it before cleaning.

5. **Clean the door gasket** and the area around the gasket where the door seals. It's easy to replace. Use a dollar bill to test the seal.

6. **Cool food** before putting it in the refrigerator. This reduces the amount of work the refrigerator has to perform.

7. **Keep the refrigerator full**, even if just with water jugs. Solid mass stays cold more easily than air.

8. **Get rid of your second refrigerator or freezer.** These energy hogs of the appliance world can cost $100 per year. Consolidate food into one unit. If it is not possible to get rid of a unit, then unplug seldom used units.

Freezer

1. **Set the temperature** between zero and 10 degrees for product (not air temperature). Use a thermometer packed in frozen food for reading the temperature accurately.

2. **Keep the freezer full**, even if just with water jugs.

Dryer

1. **Clean the lint trap** each time you run the dryer. This results in a 5-10% reduction in energy use. Excess lint is also a fire hazard.

2. **Replace vent cover** with louver type. This results in a 20-50% increase in air flow, taking less energy to force air through.

3. **Don't overload** the dryer.

4. **Sort loads** by clothing weight and material type.

5. **Line-dry** your clothes. Use the sun's natural warmth to save energy.

Washing Machine

1. **Use the appropriate settings** and water level fro the load size.

2. **Wash clothes in the cold** water cycle (or at least rinse in cold water).

3. **Minimize detergent** used. The motor works harder with extra suds.

4. **Run washer with full loads** (don't run partial loads).

5. **Use an extra spin cycle** to reduce the time needed for running the dryer.

6. **Use eco-friendly** (non petroleum-based) detergent and soap.

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Dishwashers and Hand Washing

1. **Select air dry** or turn off and open the door.
2. **Run full loads**.
3. **Use tubs** or fill the sink for hand washing, rather than constantly running the water.
4. **Use cold water** to rinse dishes.

Power strips and surge protectors

1. **Switch off electronics** and appliances at the wall or power strip to cut 5-10% of your electric bill spent on standby power. Clocks and lights on TVs and stereos constantly use power unless unplugged. Power strips make it much easier to accomplish this but appliances and electronics can also simply be unplugged when not in use. The basic rule of thumb is this: if you can see it on (standby light, clock) or feel it on (heat coming from wall chargers), then it's considered a "phantom power user" because it is constantly drawing electricity, even when "turned off".

Lighting

1. **Replace incandescent** light bulbs with compact fluorescents. Each bulb can save 100 pounds of carbon dioxide a year and will cut your lighting costs. Use them in almost any fixture and experience the improved quality of light. Purchase at any hardware or lighting store.
2. **Turn off lights** when you leave a room to save money and cut emissions.
3. **Use task lighting** instead of lighting an entire room.
4. **Use dimmer switches** when full intensity lighting is not needed.
5. **Take advantage of natural light** during the daytime.
6. **Put outdoor lights on a motion sensor** or use solar lights.

RESOURCES

Home Energy Saver: do-it-yourself home energy audit
http://hes.lbl.gov

U.S. Department of Energy - Energy Efficiency and Renewable Energy. Info on multiple aspects of energy savings
http://www.energysavers.gov

"Energy Saver$" Tips for saving energy and money at home
http://www1.eere.energy.gov/consumer/tips

Weatherization Guide, Bonneville Power Administration.
http://www.bpa.gov/energy/n/energy_tips/weatherization

Information on compact fluorescent lights:

http://www.nmenv.state.nm.us/SWB/doc/fluorescent.html

http://fcgov.com/conservation/lighting-faq.php

Local / State / Regional:

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El Paso Electric Co.— energy efficiency section
http://www.epelectric.com

NM Energy, Minerals, and Natural Resources Department (EMNRD)—Energy Conservation and Management Division's section on useful tools
http://www.emnrd.state.nm.us/ecmd/UsefulTools/LinkstoHelpfulTips.htm

PNM: home energy saver pages:
http://www.pnm.com/customers/hea.htm

Green Building

Architecture 2030—info on buildings contributions to carbon emmissions
http://www.architecture2030.org

Building Green: Green Spec guide, a source book for green-building materials, articles on policy, siting, energy, materials, etc.
http://www.buildinggreen.com

U.S. Green Building Council
http://www.usgbc.org

Local / State / Regional:

Build Green New Mexico
http://www.buildgreennm.com

City of Albuquerque– green building in the city:
http://www.cabq.gov/albuquerquegreen/green-goals/green-building

New Mexico Chapter of US Green Building Council:
http://www.usgbcnm.org

NM EMNRD: Clean Energy Incentives; Energy Efficiency—Buildings:
http://www.emnrd.state.nm.us/ECMD

New Mexico Solar Energy Association - Good info and extensive directory of local resources for materials and services
http://www.nmsea.org/Directory

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